Report on Sandhill Cranes for

Baja California, California, Oregon, Washington

and Alaska

Carroll D. Littlefield
Malheur National Wildlife Refuge
Box 113
Burns, Oregon 97720

April 30, 1973

DESCRIPTION OF OCCUPIED RANGE

Greater Sandhill Crane. During spring and summer the Central Valley Population of Greater Sandhill Cranes (Grus canadensis tabida) occupy flooded meadows and marshes throughout the Great Basin and Cascade Mountains of south-central and southeast Oregon, and northeast California. Greatest nesting densities are located on Malheur National Wildlife Refuge, Sycan Marsh, Alvord, Harney, Warner, and Chewaucan Valleys, Oregon and Surprise and Big Valleys California.

Malheur N.W.R., Oregon contains typical Great Basin sandhill crane habitat. The marshes consist of numerous species of grasses interspersed with extensive stands of hardstem bulrush (Scirpus acutus), cattails (Typha latifolia), and broad-fruited burreed (Sparganium eurycarpum). The upland areas are characterized by tablelands covered with stands of big sagebrush (Artemisia tridentata), greasewood (Sarcobatus vermiculatus), rabbitbrush Chrysothamus nauseosus), and western juniper (Juniperus occidentalis). In the Cascades the meadows and marshes are surrounded by sagebrush, willows (Salix spp.), ponderosa pine (Pinus ponderosa), and Douglas fir (Pseudotsuga menziesii).

Approximately 70 per cent of sandhill crane nesting habitat utilized by this population is privately owned. Extensive haying and cattle grazing occurs, not only on private but public lands as well. Haying operations are initiated in early and late July and continue into September. A few natural meadows have been destroyed and replaced with alfalfa in certain localities in recent years. At present this practice has caused little damage since it is necessary to pump water for irrigation. However, considerable habitat destruction could occur in the future.

Most grazing occurs during the winter months and does affect crane nesting, primarily by trampling and consuming of nesting cover. There are some areas where summer grazing occurs on both private and public lands. Such programs definitely affect nesting success and should be eliminated, at least on public lands.

From September to November Greater Sandhill Cranes migrate southwestward to the Central Valley of California. Wintering concentrations occur from Chico, southward to Delano, with the highest density northwest of Lodi, near Thornton, California. These concentrations are situated in areas where shallow water provides loafing and roosting sites, and near agricultural regions that provide food, primarily cereal grains (rice, sorghum, barley, corn).

In addition to the Central Valley Population, 45 to 50 greaters winter southeast of Brawley in the Imperial Valley. These birds are members of the Colorado River Valley Population which nests in Nevada, western Utah (formerly), and possibly central Idaho. Their roosting site is on a private gun club which consists of several small ponds surrounded by tamarisk (Tamarix sp.). From 1965 through 1972 their numbers have remained stable.

Very little of the Central and Imperial Valleys remain in their natural state and in all areas where Greater Sandhill Cranes winter there has been a high degree of land disturbance. The flat topography is used primarily for agricultural purposes. Most loafing and roosting sites are on private land with the exception of Gray Lodge Wildlife Area, near Yuba City and Merced National Wildlife Refuge, near Merced. Roosting and loafing sites on private lands are surrounded by grasses, principally sedges (Carex spp.) and saltgrass (Distichlis stricta). At Gray Lodge W.A. and Merced N.W.R., in addition to grasses, extensive stands of cattails are present. Feeding areas, other than cereal grains, include flooded meadows, saltgrass stands, and pastureland.

Little work on sandhill cranes has been done in Baja California other than occasional sight observations. Walkinshaw (1949) reported on several such records from northern Baja and stated

that these birds were probably Lesser Sandhill Cranes (Grus canadensis canadensis) based on a specimen collected by C. C. Lamb near Cerro Prieto on February 7, 1928. Presently it is believed that most of the observations were of Greater Sandhill Cranes since few lessers have been seen in the Colorado River and Imperial Valleys in recent surveys.

In recent years few records exist for Baja and it is assumed they no longer occur there in significant numbers. Birds that formerly wintered in this region are now concentrated approximately 18 miles north of Blythe, California as a result of recent agricultural developments on the Colorado River Indian Reservation in Arizona. Extensive areas of mesquite (Prosopis juliflora) have been cleared and replaced with sorghum, barley, and alfalfa. At the present time this development is continuing. From 1969 through 1972 approximately 700 Greater Sandhill Cranes were wintering in this area. Since few crane observations have recently occurred farther south, it is assumed that the population is being "short-stopped," no longer migrating into Baja California.

Presently none of the California wintering areas appear to be in immediate danger. However, with continual urbanization future problems could develop. One potential problem is the Thornton area. Sacramento, 21 miles north of Thornton, is expanding at a rapid rate and could pose a future threat.

In Washington, Greater Sandhill Cranes formerly nested both east and west of the Cascades, but few definite records exist in recent years. The last known nesting occurred in 1941, when a nest containing a single egg was discovered near Signal Peak on the Yakima Indian Reservation (Jewett, et al., 1953)

Lesser Sandhill Crane. Lesser Sandhill Cranes return to Alaska in late April and early May and reach the West Coast by May 10. Nesting is usually in progress by the last week in May. This subspecies nests abundantly in portions of Alaska, but total numbers and nesting densities remain to be determined. Biologist Dan Timm, Alaska Department of Fish and Game, estimates that approximately 70,000 cranes nest in Alaska. He further reported that between 70,000 and 100,000 cranes migrated over Tok, Alaska on September 16, 1972 (Pers. Comm.). Many of these were probably migrants from Siberia.

Sandhill cranes nest from the Alaska Peninsula west and north to the Bering Sea and Arctic Ocean. High concentrations occur along the Kuskokwim, Yukon, Noatuk, Meade, and Colville Rivers, Norton Sound, Kuskokwim and Hooper Bays, and in the vicinity of Point Barrow. Nesting occurs inland from Fairbanks and Circle north to the Arctic Coast and east to the Canada border. In addition to the mainland, nesting has been reported on Nunivak Island in the Bering Sea (Swarth 1934). Cranes also occur on St. Lawrence Island, but they presumably do not breed there (Sealy et al., 1971).

Nests are usually located in moist situations, primarily sedge-grass meadows which are most prevalent on the large river deltas along the west and north coast. Walkinshaw (1949) found four nests constructed on damp moss atop ridges near Chevak, and Brandt(1943) described nest locations as either upland or lowland tundra, but usually in poorly drained areas or on a grass-grown shallow pond site. Henry A. Hansen, U.S. Fish and Wildlife Service, described crane habitat as consisting primarily of wet sedge-grass meadows either on the open coastal tundra or where large openings occur in the spruce muskeg habitat of the interior (pers. comm.).

Due to its remoteness and inaccessibility, most Alaska sandhill crane nesting habitat does not appear in immediate danger. However, with increasing interest in oil exploration future problems may develop. Losses could occur not only by direct habitat destruction, but by human disturbance in many major nesting localities. Drilling sites, vehicular traffic, pipe-lines, and low flying aircraft would have detrimental effects on nesting cranes in these remote areas.

In late August Lesser Sandhill Cranes begin migrating from Siberia and western Alaska and have usually left the state by early October. The majority migrate southeast toward the Plains States and eventually to their wintering areas in Texas, New Mexico, and Mexico. Approximately 20,000 of these birds leave the main

migration route and migrate south-southeast toward California. Hansen reported that one migration route follows the Yukon Valley, crossing into Canada in the vicinity of Dawson and another follows the coast south through the Alexander Archepelago (pers. comm.). The coastal migrants may represent the birds that winter in California. Apparently most enter the western United States through the Okanogan Valley, British Columbia and proceed south through eastern Washington and Oregon. They enter California in Modoc and Siskiyou Counties and continue to Honey Lake near Susanville. From Honey Lake they fly south across the Sierra Nevada Mountains entering the Central Valley near Merced. About 900 cranes migrate through western Washington, entering Oregon north of Portland. They linger for several weeks in the vicinity of Sauvie Island before flying south through the Willamette Valley to their wintering area near Red Bluff, California.

With the exception of the Red Bluff Population, most Central Valley lessers winter farther south than the Greater Sandhill Cranes. Mixed flocks occur near Thornton, Modesto, and Merced. Concentrations of lessers occur on Goose (30 miles northwest of Bakersfield) and Soda Lakes, near Simmler (50 miles north of Santa Barbara). No greaters have been seen in these two regions, and few lessers have been seen north of Thornton (except Red Bluff) or in the Imperial Valley.

Wintering habitat includes shallow water for loafing and roosting sites, with surrounding agricultural regions for feeding. Food consists primarily of cereal grains.

With the exception of Merced N.W.R. and San Luis N.W.R., wintering populations are on private lands. Most areas are in remote regions that are in no danger of development, with the exception of Thornton. The Soda Lake concentration is in an area that was developed for housing about 1960, but few houses have been constructed and the development is an apparent failure.

Sandhill Crane (subspecific status unknown). Webster (1950) reported a small population of sandhill cranes nest in southeast Alaska. Nesting and sight records exist on islands in the vicinity of Wrangell and Petersburg. These islands are approximately 700 nautical miles east-southeast of the nearest nesting populations of Lesser Sandhill Cranes. Therefore, they probably represent a northwest segment of the Canada Sandhill Crane (Grus canadensis rowani). At the present time little information is available on these birds.

CENSUS PROCEDURES

Total Population - In recent years total numbers of Central Valley Greater Sandhill Cranes have been determined by counting individual birds. Such counts have been made as the birds moved to or from their roosting sites.

Counts were initiated in 1970 on Malheur N.W.R. after it became apparent that the refuge was the fall "staging" area for the Central Valley flock. These counts begin in late August and continue through October. The same procedure was used for both subspecies of cranes wintering in California with counts made from October through February at all known wintering localities.

Prior to 1969, California counts by wildlife personnel were ocular estimates with no subspecific differentiation.

Fog often makes early morning counts difficult, or impossible in December and January in California. Thus, census by counting during these months was accomplished in the late afternoon as the cranes arrived at their roosting sites.

Nesting Densities - In April and May (1966-73) Greater Sandhill Crane nesting concentrations were studied in Oregon and California. Although some of the more isolated nesting areas were not examined, densities were determined on all major nesting localities.

Production - Sandhill crane production on Malheur N.W.R. is determined from actual counts of young concentrating on feeding areas between September 1 and 7. At this time few "staging" cranes have returned to the refuge and those birds present are from the local nesting population.

Similar counts have not been made at other nesting localities. However, November counts in California indicate annual production on the refuge is an indicator of production for the entire population.

POPULATION TRENDS

An estimated 3,200 Greater Sandhill Cranes are present in the Central Valley Population. Since 1966, when field work was initiated, their numbers have remained relatively stable. Several factors can be attributed to this stable condition. On Malheur N.W.R., nesting success has varied from 35 to 59 percent, depending on water conditions and predation. High densities of ravens (Corvus corax) and raccoons (Procyon lotor) result in high losses of eggs. Coyotes (Canis latrans) are abundant but have resulted in only minor losses on Malheur; however, they may be important predators in other portions of the cranes' nesting range.

Little predation on young has been noted. Longtail weasels (Mustela frenata) predation has been recorded, with Golden Eagles (Aquila chrysaetos) and coyotes probably taking a few flightless young; however, such losses have not been significant.

Little information is presently available on reproduction and predation of Lesser Sandhill Cranes in Alaska. Warburton (1931) mentions nest predation by Long-tailed Jaegers (Stercorarius

longicaudus). Probably gray wolves (Canis lupus) and Arctic foxes (Alopex lagopus) take nests and young. Avian predators such as Pomarine Jaeger (S. pomarinus), Parasitic Jaeger (S. parasiticus), and Herring Gulls (Larus argentatus) no doubt prey on unattended eggs.

The winter population of Lesser Sandhill Cranes in California totals approximately 20,000 birds. Information available indicates their numbers have remained generally constant for the past 20 years (U.S. Fish and Wildlife Service Narrative Reports).

Many cranes of both subspecies are lost in California during the winter. Illegal hunting and powerlines account for a high percentage of these losses. On foggy mornings as cranes leave their roost sites, collisions with powerlines regularly occur. Such collisions are usually fatal either by impact or electrocution. As many as five birds in one day were killed in 1971 at Merced N.W.R. by such collisions.

OTHER USE DEMANDS

At Malheur N.W.R. non-consumptive use demands have increased considerably in recent years (Table 1).

Table 1. Visitor use on Malheur National Wildlife Refuge, Oregon

Year	Total No. of Visitors	Consumptive	Non-Consumptive	Est. No. That Ask About Cranes
1972	37,455	4,300	33,155	24,866
1971	28,159	4,446	23,713	17,785
1970	21,552	5,832	15,720	11,790
1969	23,416	7,825	15,591	11,693
1968	22,087	5,667	16,420	12,315

Of the non-consumptive visitors that stop at refuge headquarters, approximately 75 percent specifically ask about sandhill cranes.

Both California and Oregon have adequate areas to observe and photograph cranes. However, in Washington the only regular concentration is in the vicinity of Ridgefield N.W.R., near Vancouver, Washington where they are usually seen daily from mid September to mid November. Increased publicity concerning this flock would no doubt increase public use demands considerably, since the refuge is situated near heavily populated areas.

In Alaska most crane habitat is inaccessible, making observations difficult. Accordingly, it is difficult to recommend ways to increase non-consumptive public use on cranes. Since few roads exist in areas of highest crane densities, aircraft transportation

would be necessary which virtually prohibits the average bird-watcher. Possibly an area adjacent to roads near Fairbanks could be established if favorable nesting concentrations were present.

NEEDS OF SPECIES

Good habitat management for Greater Sandhill Cranes is of key importance in maintaining the population on the West Coast. The following is a list of recommendations:

(1). Elimination of summer grazing.

(2). Fall flooding, following mowing, to stimulate grass growth before freeze-up. This would be especially important for cranes nesting in areas that have no emergent vegetation.

(3). Reduce, or eliminate winter grazing, thus providing favorable feeding or nesting areas in the spring.

(4). Flood early to provide water in the deeper portion of meadows which stimulates growth of emergent vegetation for nesting cover.

(5). Keep meadows moist, but not completely submerged to avoid invasion of emergents into feeding meadows.

(6). Remove mowed hay from meadows, thus avoiding the possibility of Aspergillosis.

(7). Keep water levels in nesting areas stable.

(8). Encouragement of American Coot (Fulica americana) nesting near crane territories. They provide an excellent "buffer," thus reducing egg predation on cranes.

Egg predation by Common Ravens and raccoons contributes greatly to the stable condition that presently exists in the West Coast population of Greater Sandhill Cranes. Where these predators are concentrated in crane nesting areas some control is recommended. Coyote control might also be necessary in localized areas where this species causes significant damage. Other predators are not important in this region and no control is necessary.

As Sacramento continues urban expansion, cranes normally wintering near Thornton may eventually be affected by human disturbance and habitat loss. Since the nearest National Wildlife Refuge is Merced, approximately 150 miles southeast, a new refuge should be established in the Modesto area. Ideal greater wintering habitat exists on privately owned areas approximately ten miles west of Modesto near the confluence of the Stanislaus and San Joaquin Rivers. The area is bisected by a small creek which provides water for a sizable roosting pond. Grainfields and irrigated pastureland are available and utilized by feeding sandhills. In addition to cranes, numerous waterfowl winter in this area, thus providing an ideal situation for a wildlife refuge. With additional habitat improvement, a large

percentage of the Central Valley Population of Greater Sandhill Cranes would no doubt winter in this area, considering it is only about 30 miles from the Thornton concentration.

Until further information becomes available on nesting Lesser Sandhill Cranes, no recommendations can be made. However, since most Alaska habitat remains undisturbed no improvements are necessary. Dan Timm, Alaska Department of Fish and Game, further confirms this statement with his report that most Alaska crane nesting habitat is publicly owned, and is in no danger of being destroyed in the foreseeable future (pers. comm.).

A cooperative study between the Alaska Department of Fish and Game and the U.S. Fish and Wildlife Service should be initiated to determine the status of Lesser Sandhill Cranes in Alaska. Emphasis should be placed on production, density, and total population. Henry Hansen, U.S. Fish and Wildlife Service, reports a definite need for research on this subspecies (pers. comm.). At present only incidental counts are being made during waterfowl surveys.

If production figures cannot be obtained in Alaska nesting areas, I would recommend that adult-young counts be made on migratory feeding groups in Alaska and Canada.

A survey of Baja California is recommended to see if any cranes continue to winter there. Past wintering records indicate that most areas are in northern Baja, thus providing easy access for ground surveys. Perhaps the refuge staff at Salton Sea N.W.R. or Game Management Agents in San Diego and Los Angeles could investigate this region.

NEEDS OF THE PUBLIC

Most areas used by cranes in California, Oregon, and Washington do not require increased access. Many wintering concentrations are near roads and easily observed with binoculars or spotting scopes. During the spring and summer, Malheur N.W.R. and Klamath Forest N.W.R., Oregon and Surprise Valley and Modoc N.W.R., California provide excellent areas for sandhill crane observations. Most areas in Alaska are too remote to recommend ways to improve access.

Since Greater Sandhill Cranes in the Pacific States are not significantly increasing, I cannot recommend a crane hunting season. Many areas where lessers are concentrated also contain greaters. If crane hunting is necessary in California, I would recommend that it be confined to the southern portion of the Central Valley, in the vicinity of Goose and Soda Lakes. However, since crane numbers are low (peak ±4,000) little recreation would be realized.

Most cranes would probably leave those areas and move back northward after a few days of hunting pressure. The only advantage, other than providing minor recreation, could be elimination of depredation problems that occur on a few barley fields that are in the vicinity of these localities.

MANAGEMENT NEEDS AND ESTIMATED COST

Modesto refuge purchase. - Faith Ranch. Estimated cost per acre for irrigated pastureland in Stanislaus County, California is $400 to $500. Due to increasing California land values I recommend that the Faith Ranch, or one comparable, be purchased within the next ten years. Assuming the ranch is approximately 1,500 acres, total cost would be between $600,000 and $750,000.

RESEARCH NEEDS AND ESTIMATED COST

A study of Lesser Sandhill Cranes in Alaska should be initiated within five years, since the subspecies receives considerable hunting pressure along their migration route and in wintering areas. The study should be a cooperative effort between the Alaska Department of Fish and Game and the U.S. Fish and Wildlife Service. A two year study would require approximately $100,000. Most of this amount would be used for helicopter rental cost with the remainder going for salaries, supplies, etc., for two biologists.

The cost of the other proposed recommendations would consist of such small amounts that they are not included in this report.

LITERATURE CITED

Brandt, H. 1943. Alaska bird trails. Bird Research Foundation, Cleveland. 464 pp.

Jewett, S. G., W. P. Taylor, W. T. Shaw, and J. W. Aldrich. 1953. Birds of Washington State. Univ. of Wash. Press, Seattle. 767 pp.

Sealy, S. C., Jean Bedard, and M. D. F. Udvardy. 1971. New records and zoogeography notes on the birds of the St. Lawrence Islands, Bering Sea. Condor 73(3): 322-335.

Swarth, H.S. 1934. Birds of Nunivak Island, Alaska. Cooper Ornith. Club No. 22, Los Angeles. 64 pp.

Walkinshaw, L. H. 1949. The Sandhill Crane. Cranbrook Inst. of Sci., Bull. 29, Bloomfield Hills, Mich. 202 pp.

Warburton, S., Jr. 1931. Nesting of the little brown crane. Murrelet 12(1): 1-6.

Webster, J.D. 1950. Notes on the birds of Wrangell and vicinity, southeastern Alaska. (I don't have the journal, vol., No., or pages with me.)

Submitted by: Carroll D. Littlefield

Carroll D. Littlefield
Dept. of Biological Sciences
University of Arizona
Tucson, Arizona 85721

Date: 4-29-73